[](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&frm=1&source=images&cd=&cad=rja&docid=KhmVxzY6jnkGnM&tbnid=FzFJ4bk31UUzoM:&ved=0CAUQjRw&url=http%3A%2F%2Fhazellcottrell.com%2F2012%2F05%2F17%2Fhousehold-uses-for-alka-seltzer%2F&ei=EGE4UuKsGtXI4AOJsIHoAQ&bvm=bv.52164340,d.dmg&psig=AFQjCNGAxu0N4ML31kuOjrKkQtvffPrBXQ&ust=1379512968830659) Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Reaction Rate Lab: Alka Seltzer**

**Procedure:**

**Temperature Experiment:**

**A. Hot Water**

1. Add about 150 mL of tap water to a beaker and place it on the hot plate. Heat the water until it is about 75oC.

2. Use the thermometer to take the temperature and record it on your data sheet.

3. Remove 1 Alka-Seltzer tablet from its package. Drop it into water. Measure the time required for tablet to fully dissolve. Be prepared to start and stop on time. The reaction will take less than 15 seconds. Record the time.

**B. Room Temperature Water**

1. Fill a beaker with about 150 mL of room temperature water.

2. Use the thermometer to take the temperature and record it on your data sheet.

3. Drop 1 Alka-Seltzer tablet into the water. Measure the time required for the reaction to be completed. Record the time.

**C. Cold Water**

1. Fill a beaker with about 100 mL water and add ice. Stir the ice water for about 15 seconds so the temperature will come to equilibrium.

2. Use the thermometer to take the temperature and record it on your data sheet. (Leave the ice cubes in the water!)

3. Drop 1 Alka-Seltzer tablet into the water. Measure the time required for the reaction to be completed. Record the time.

**Surface Area Experiment:**

**A. Whole Tablet**

1. Fill a beaker with 150 mL. of room temperature water.

2. Drop 1 whole Alka-Seltzer tablet into the water. Measure and record the time to dissolve.

**B. Tablet Broken in half**

1. Break 1 tablet in half.

2. Fill a beaker with about 150 mL of room temperature water.

3. Slide broken tablet into the water from the sheet. Measure and record the time to dissolve.

**C. Tablet broken into as many pieces as possible**

1. Break one Alka-Seltzer tablet into as many pieces as possible.

2. Transfer it into a beaker.

3. Add about 150 mL of water to a beaker. Measure and record the time to dissolve.

**Data:**

Water Temperature - Time for Reaction to be Completed

Hot Tap \_\_\_\_\_ degrees C \_\_\_\_\_\_ Seconds

Room temperature \_\_\_\_\_\_ degrees C \_\_\_\_\_ Seconds

Ice Water \_\_\_\_\_ degrees C \_\_\_\_\_ Seconds

Particle Size Time for Reaction to be Completed

Whole Tablet \_\_\_\_\_\_\_\_\_ Seconds

2 Pieces \_\_\_\_\_\_\_\_\_Seconds

Many Pieces \_\_\_\_\_\_\_\_\_Seconds

Questions and Analysis

Graph your data points (water temperature on the x axis, time to fully dissolve on the y axis) to show the effect of temperature on Rate of Reaction. Label the axis, and connect the points.

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1.) As the temperature increases, the rate of reaction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2.) Using your graph, if the temperature is 45oC, how long will it take to dissolve? \_\_\_\_\_\_\_\_\_\_\_

3.) As particle size decreases, the rate of reaction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4.) The rate of reaction for the powder was \_\_\_\_\_\_\_\_\_\_\_ times faster than for the whole tablet.

6.) Particle size appears to have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (less or more) of an effect on the rate of reaction than temperature.